REBUTTAL TESTIMONY

OF

SHEENA KIGHT

FINANCE DEPARTMENT

FINANCIAL ANALYSIS DIVISION

ILLINOIS COMMERCE COMMISSION

CONSUMERS ILLINOIS WATER COMPANY
PROPOSED GENERAL INCREASE IN WATER RATES

DOCKET NO. 03-0403

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Witness Identification

Q. Please state your name and business address.

A. My name is Sheena Kight. My business address is 527 East Capitol Avenue, Springfield, IL 62701.

Q. Are you the same Sheena Kight who previously testified in this proceeding?

A. Yes, I am.

Q. Please state the purpose of your rebuttal testimony in this proceeding.

A. The purpose of my rebuttal testimony is to respond to the rebuttal testimony of Consumers Illinois Water Company ("CIWC" or "Company") witnesses Pauline M. Ahern (CIWC Exhibit R-3.0).

Recommendation

Q. Please evaluate Ms. Ahern's rebuttal testimony.

A. Ms. Ahern's rebuttal contained nothing to change my opinion of CIWC's cost of common equity. In my judgment, the investor required rate of return on common equity for CIWC is 9.86%.

Response to Ms. Ahern

General Misconceptions

Q. Is Ms. Ahern correct when she repeatedly asserts that analysts such as you and she should attempt to emulate investor behavior?[1]

A. Ms. Ahern is incorrect on two levels. First, even if Ms. Ahern's assertion was valid, and it is not, it implies that investor behavior is homogenous, unvarying, and knowable. If true, Ms Ahern should have demonstrated that her conception of investor behavior is valid. She did not. Obviously, investor behavior has none of those traits, making attempts to emulate it unproductive. Second, while investors determine appropriate prices to pay for securities given their required rates of return, my task is to estimate the investor required rate of return observable market prices imply. Different investors surely use different valuation methodologies. For example, an investor may buy a security simply because he believes its price will appreciate rapidly, without performing any fundamental analysis. Whether or not an investor applies a formal valuation methodology, one can still estimate that investor's required rate of return from the price he is willing to pay through the application of valid financial market models.

Q. Ms. Ahern repeatedly resorts to the argument that "absent evidence to the contrary…"[2] **her assumptions should be accepted by the Commission. Do you agree with Ms. Ahern?**

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[1] CIWC Exhibit R-3.0, pp. 5, 13, 15, 18, 20, 21, 27, and 28.

A. No. CIWC bears the burden of proof in this proceeding, and even if it did not, the Commission should require Ms. Ahern to demonstrate convincingly that her deviations from financial theory are supported with observable fact rather than the conjecture and supposition on which she relies.

Q. In response to the statement at page 13, lines 203-206 of your direct testimony, Ms. Ahern claims that "a comprehensive analysis of CIWC's risks vis-a-vis the companies upon whose market data both I and Ms. Kight rely is mandatory…"[3] Please comment.

A. Analyzing the risk of CIWC and the companies included in samples is necessary to assess the suitability of those samples as proxies for CIWC. That is why I selected companies for the utility sample that had similar business profiles and credit ratings.[4] However, the sentence from my direct testimony that Ms. Ahern criticizes is not about the development of samples comparable in risk to CIWC. Rather, I was describing the discounted cash flow ("DCF") analysis, which does not require a risk analysis to implement. As shown in my direct testimony, the DCF model contains no direct measure of risk.[5]

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2 CIWC Exhibit R-3.0, pp. 13, 16, 18, and 29.
3 CIWC Exhibit R-3.0, p. 3.
4 ICC Staff Exhibit 3.0, pp. 7 and 9-10.
5 ICC Staff Exhibit 3.0, p. 14.

Alleged Exclusive Reliance on the DCF Model

Q. Please respond to Ms. Ahern's allegation that your entire analysis relies exclusively on the DCF, since the market return used in your Risk Premium model was derived through a DCF calculation.[6]

A. Once again, Ms. Ahern is mistaken. First, my risk premium model uses a DCF calculation only to derive the market return ("R_M"), one of its four inputs. Second, the R_M used in my risk premium model comprises 357 different companies not used in my DCF analysis. Third, her criticism is disingenuous since in addition to using an historical market return, Ms. Ahern's Risk Premium and Capital Asset Pricing models also use DCF-derived market returns.[7]

R_M is forward-looking because it measures investors' rate of return requirement; therefore, R_M can only be estimated through a DCF calculation without resorting to untimely, obsolete historical data. Thus, if contrary to previous Orders, the Commission judges that the DCF-derived R_M should not be applied within the risk premium model, then I would have to substitute a R_M derived from an historical risk premium. According to Ms. Ahern's direct testimony, the Ibbotson historical risk premium is 7.0%,[8] which added to the 5.5% U.S. Treasury bond yield would result in an R_M estimate of 12.5%. Thus, my risk premium analysis using the historical R_M would produce cost of equity estimates of 9.0% for my Water sample and 9.67% for

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6 CIWC Exhibit R-3.0, p. 2.
7 CIWC Exhibit No. 3.0, pp. 43 and 50-51.
8 CIWC Exhibit No. 3.0, p. 51.

my Utility sample, both of which are below the 9.58% and 10.36% estimates I obtained with my methodology.

Q. Ms. Ahern states that the Efficient Market Hypothesis ("EMH") presumes that "investors are aware of all publicly-available information, including…various cost of common equity methodologies." Thus, she concludes that the EMH mandates "that no single common equity cost rate model should be relied upon in determining a cost rate of common equity…" and that your "exclusive reliance upon the DCF model is at odds with the very foundation, i.e., the EMH, upon which the DCF is predicated."[9] Is her conclusion correct?

A. No. The semi-strong form of the EMH states that "security prices should reflect all relevant information that is publicly available at any point in time" and that "the expected returns implicit in the current price of the security should reflect its risk."[10,11] However, the EMH does not identify what information is relevant let alone which security pricing methodologies investors use. Specifically, the EMH is concerned with whether investors can reap "excess" returns[12] from a given information set (e.g., historical price information, all publicly-available information, or all public and non-publicly available information). The EMH recognizes that not all information is relevant in determining asset prices. For example, the identity of the winner of the

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9 CIWC Exhibit R-3.0, p. 2.

10 Copeland, Thomas E. and J. Fred Weston, ~~Financial Theory and Corporate Policy~~, Second Edition, 1983, p. 287.

11 Although evidence from tests of the semi-strong form of the EMH is mixed, I will assume, for the sake of argument, that the semi-strong form holds.

12 For the purpose of this discussion, returns are "excess" when they exceed "normal" levels.

World Series, although widely known, has no measurable effect on asset prices. While analysts should use more than one valid common equity cost rate model in order to avoid the potential misestimates possible with any single model, the EMH does not dictate that they do so, particularly if those models do not explain the prices that investors pay for securities. Thus, even if my entire analysis relied exclusively on the DCF, which it does not, it would not be at odds with the EMH.

Sample Selection

Q. Ms. Ahern criticizes your selection of the utility sample because of your use of S&P credit ratings and business profiles instead of computing "several operating and financial ratios" as Staff did in CIWC's prior rate case.[13] Please comment.

A. First, Ms. Ahern's criticism is unwarranted since she relied upon credit ratings and business profiles in her effort to show that the companies in her utility sample were similar in risk to CIWC.[14] Second, in past rate cases Staff has utilized a general utility sample selected on the basis of a quantitative comparison in risk to the petitioner.[15] However, recent industry restructuring has rendered questionable the measurement of financial and operating risk with historical data for many utilities. Since selecting a sample that reflects both the operating and financial

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[13] CIWC Exhibit R-3.0, p. 3. Ms. Ahern uses the term "bond rating" rather than "credit rating;" however, in the context of this discussion, the terms are interchangeable.

[14] CIWC Exhibit R-3.0, pp. 11-12.

[15] The Staff comparable sample methodology, which is described in Staff Ex. 7, pp. 8-10 filed in Docket Nos. 00-0337/00-0338/00-0339 consolidated, differs from Ms. Ahern's comparable sample methodology in important respects. Nevertheless, those differences need not be discussed further since my criticism of Ms. Ahern's utility sample is based on its composition, not its derivation.

characteristics of CIWC is essential, I relied upon S&P business profiles and credit ratings. As discussed on pages 8-10 of my direct testimony, a business profile score was determined to reflect the operating risk of CIWC and financial ratios were calculated to determine CIWC's financial strength. The S&P published targets for utilities with business profile scores of 3 indicate that CIWC's financial strength is consistent with an A+ corporate credit rating. The S&P credit ratings measure the risk that a company will default on financial obligations, which is a function of both operating and financial risk.[16] By limiting the sample to companies with similar S&P credit ratings and business profile, the sample will have similar exposure to financial and operating risk as CIWC.

Capital Asset Pricing Model

Q. Please respond to Ms. Ahern's assertion that there is a "tendency of the DCF model to mis-specify investor's [sic] required return rate when the market value of common stock differs significantly from its book value."[17]

A. To address this issue, one must first explore why the market value of utility common equity exceeds book value, which Ms. Ahern failed to do. Two possible explanations for how utility stock prices have come to exceed their respective book values exist: (1) the investor-required rate of return has fallen or (2) expectations of future earnings have risen. The investor-required rate of return on an investment in a

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[16] Standard & Poor's, *Utilities Rating Service: Financial Statistics, Twelve Months Ended June 30, 1998*, p. 1; Standard & Poor's, *Utilities Rating Service: Industry Commentary*, May 20, 1996, p. 1.

[17] CIWC Exhibit R-3.0, p. 5.

utility would fall if either the price of risk (i.e., the risk premium) has fallen or if investors' perceived level of risk in that utility has fallen. Either way, if a utility's stock price grows to exceed its book value due to a decline in investors' required rate of return for that utility, then it obviously follows that the Commission should authorize a lower rate of return. In contrast, Ms. Ahern would illogically conclude that the Commission should authorize a utility a higher rate of return whenever that utility's investor-required rate of return declines.

An increase in investors' expectations of future returns could also cause a rise in market values over book values. Such an increase in expectations may be due to positive deviations (e.g., higher than projected sales) from the test year amounts upon which the company's rates are set. Clearly, the Commission should not approve higher rates today based on such deviations from past rate case estimates. Increased expectations of future returns may also be a function of earned returns from sources other than the revenue requirements formula component, the product of rate base and rate of return ("R_{Other}"). Earnings from these sources could allow a utility to earn returns beyond the level needed to meet investors' required rate of return. The danger in allowing a utility to earn a rate of return on equity rate base in excess of the market required rate of return on common equity becomes apparent when those other sources (R_{Other}) of value are recognized. The result is a never ending upward spiral as each successive increase in market value would lead to another increase in the allowed rate of return, which in turn, would lead to a further increase in market value.

R_{Other} can come from a number of sources. First, many utilities have unregulated sources of income that would contribute to earnings beyond the level needed to meet the required rate of return. Obviously, the Commission should not allow regulated utilities higher rates of return due to stock price increases caused by such unregulated operations. Second, the normalization of deferred income taxes and income tax credits might also contribute to the divergence between utility market and book equity values since that practice compensates utilities for taxes they do not yet owe. Finally, investors do not value utilities on the basis of accounting earnings, but on economic earnings and cash flow. In utility revenue requirements, part of cash flow comes from operating income (i.e., rate base $\times$ rate of return). The larger share of the remainder comes from operating expenses in the form of depreciation and deferred taxes. The Commission should not further increase allowed rates of return when benefits that utilities receive from other aspects of the rate setting process such as tax normalization and depreciation increase stock prices above book value. To do otherwise would compensate utilities twice for the same sources of cash flow.

Q. Ms. Ahern claims that the R_M used in your Risk Premium model is grossly understated because the market value of the S&P 500 was much higher than its book value and consequently the results of your risk premium analysis are understated.[18] Is she correct?

A. No. The fact that the market-to-book ratio of the S&P 500 Index was 296.0% at year end 2002 does not indicate that the required rate of return has increased. Ms.

Ahern confuses required rates of return on market equity with expected rates of return on book equity. The market value of an investment is an estimate of future earnings discounted at the required rate of return. The required rate of return is based on investors' time value of money and the assessed risk of the investment. If the required rate of return rises, all else held constant, the price of an investment will fall. Similarly, if the price of an investment has risen, all else constant, the investor required rate of return must have fallen. The market price of a common stock does not achieve equilibrium until the expected rate of return on the common stock equals the investor required rate of return.

The falseness of Ms. Ahern's claim that the R_M I used in my Risk Premium analysis is grossly understated due to a DCF bias, is clear given that my 13.66% of R_M is higher than the 12.4% estimate of R_M Ms. Ahern calculated from historic, non-DCF, data.[19] Therefore her claim of a downward DCF bias is unfounded.

Q. Ms. Ahern claims that investors need not compute their own betas since betas are readily available from Merrill Lynch.[20] Please comment.

A. As I explained earlier, the objective of rate of return analysts is not to emulate investors, but rather to discern investors' required rate of return based on observable market prices. Regardless, nothing in financial theory posits that it is

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[18] CIWC Exhibit R-3.0, p. 5.
[19] CIWC Exhibit No. 3.0, pp. 42 and 48. 12.4% is the sum of the historic risk premium, which Ms. Ahern states as 7.0%, and the current risk-free rate, which Ms. Ahern states as 5.4%.
[20] CIWC Exhibit R-3.0, p. 6.

inappropriate for an investor (or analyst) to calculate her own betas. Further, despite Ms. Ahern's assertion to the contrary, I do not have access to Merrill Lynch's published betas.[21] However, Merrill Lynch's betas can be reproduced with Merrill Lynch's beta estimation methodology, [22] which results in adjusted beta estimates of 0.36 for my water sample and 0.38 for my utility sample . Yahoo publishes unadjusted beta estimates, which are calculated using the same methodology as Merrill Lynch. When the Merrill Lynch adjustment formula is applied to the unadjusted Yahoo betas, the Merrill Lynch methodology produces a beta estimate of 0.36 for the Water Sample and 0.38 for the Utility Sample. The table below presents the Yahoo betas for the companies in my samples and adjusts each beta using the same methodology as Merrill Lynch.[23]

Water Sample			Utility Sample		
Company	Yahoo Beta	Adjusted Beta	Company	Yahoo Beta	Adjusted Beta
American States Water	-0.11	0.26	AGL Resources	0.24	0.50
Artesian Resources	0.24	0.50	Consolidated Edison	-0.14	0.24
California Water Services	-0.13	0.25	Laclede Group	0.01	0.34
Middlesex Water	0.29	0.53	Nicor Inc.	0.29	0.53
Philadelphia Suburban Corp.	-0.13	0.25	Northwest Natural Gas	-0.21	0.20
Southwest Water	0.11	0.41	NSTAR	0.22	0.48
York Water Co.	-0.06	0.30	Piedmont Natural Gas	-0.04	0.31
			WGL Holdings Inc	0.11	0.41
Average	0.03	0.36	Average	0.06	0.38

[21] If Ms. Ahern believes otherwise, she may certainly attempt to obtain published betas directly from Merrill Lynch herself and provide them for the record.
[22] ICC Staff Exhibit 3.0, Footnote 26, pp. 25-26.
[23] ICC Staff Exhibit 3.0, p. 27.

The Merrill Lynch and published Yahoo betas are lower than my regression betas; hence if I were to include the Yahoo/Merrill Lynch betas in my CAPM analysis, as Ms. Ahern's interpretation of EMH would require, either as additions to, or substitutes for, my regression betas, my CAPM-derived cost of common equity estimate would be lower rather than higher.

Cost of Common Equity Recommendation

Q. Ms. Ahern claims that your cost of common equity cost provides an insufficient risk premium, as measured several different ways.[24] Is her claim correct?

A. No. My cost of common equity is 9.86%. At the time my equity analysis was performed, the yield on A-rated utility long-term debt was 6.17%. Thus my cost of equity produces a risk premium of 3.69%. Ms. Ahern incorrectly compares my cost of equity estimate to CIWC's embedded cost of debt, which reflects interests rates that CIWC locked into as long ago as 1988, rather than the interest rate CIWC would pay on new debt capital. CIWC's embedded cost of debt includes the 10.4% Series M issued in December of 1988, 9.69% Series N issued in March of 1991, 9.19% Series P issued in July of 1992, and 8.0% Aroma Park Series. In contrast, CIWC has estimated that the interest rate on the new debt, Series V (CIWC plans issuance of Series V in December of 2003), will be 6.0%.

[24] CIWC Exhibit R-3.0, pp. 7-8.

After incorrectly estimating the risk premium implied by my analysis, Ms. Ahern inappropriately compared that risk premium to beta-adjusted risk premiums ($b_j \times (R_m - R_f)$) of 4.08% and 4.86%.[25] Ms. Ahern's criticism is invalid because she compares two different types of risk premiums. The first risk premium equals the difference between the cost of common equity and CIWC's embedded cost of debt whereas the second risk premium equals the difference between the cost of common equity and the risk-free rate. An equity risk premium measured relative to risky public utility debt will always be smaller than an equity risk premium measured relative to the risk-free rate.

Q. Ms. Ahern claims that your cost of common equity "does not provide CIWC with an adequate opportunity for pretax interest coverage in order to maintain its credit quality and its ability to attract capital on reasonable terms.[26] Is her claim correct?

No. My cost of capital recommendation implies a pre-tax interest coverage ratio of 3.2x for CIWC. That is well within the guideline (2.8x - 3.4x) that Standard & Poor's ("S&P") has established for a company with a business position of 3 and an A rating, which is indicative of a company with a strong financial position.[27] Moreover, the pre-tax interest coverage ratio my cost of capital recommendation implies also exceeds the mean values for A-rated water utilities of 2.98x .[28] Thus, my cost of

[25] CIWC Exhibit R-3.0, p. 7.
[26] CIWC Exhibit R-3.0, pp. 7-8.
[27] Standard and Poor's, "Utility Financial Targets Are Revised", June 18, 1999.
[28] Utility Compustat.

equity recommendation results in a pre-tax interest coverage sufficient for CIWC to maintain its credit quality and its ability to attract capital on reasonable terms.

Ms. Ahern's Utility Sample

Q. Ms. Ahern disputes your correction to her credit ratings and business profiles because she listed the "average bond ratings, not credit ratings of the operating utility subsidiaries whose bonds are rated of the proxy companies."[29] Please comment.

A. Ms. Ahern is incorrect. She used credit ratings of utility subsidiaries in an attempt to verify the reasonableness of a sample composed of the parent companies of those utility subsidiaries. Ms. Ahern's comparable sample analysis used the ratios of the parent companies in her sample, not the ratios of their subsidiaries. Worse, she mixed together ratings for debt with different priorities of claim (i.e. senior secured, senior unsecured, junior unsecured, etc.) To compare apples to apples the ratings being compared must apply to the companies that comprise her sample, not their subsidiaries. Further, the credit ratings should either measure the sample company's overall credit worthiness or, at a minimum, default risk of sample company debt issues that have similar priorities of claim.[30,31]

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[29] CIWC Exhibit R-3.0, p. 11.

[30] www.moodys.com. Moody's "Issuer Ratings are opinions of the ability of entities to honor senior unsecured financial obligations and contracts." "Moody's long-term obligation ratings are opinions of the relative credit risk of fixed-income obligations with an original maturity of one year or more. They address the possibility that a financial obligation will not be honored as promised."

[31] Standard and Poor's Ratings Direct, "Standard and Poor's Ratings Definitions," December 10, 2002, pp. 1 and 4. "A Standard & Poor's issuer credit rating is a current opinion of an obligor's overall financial

Ms. Ahern further argues that the "bond ratings… are the appropriate measure with which to assess the appropriate prospective company-specific cost of long-term debt capital." However, an issue credit rating (also referred to as a bond rating) only looks at the creditworthiness of a particular company debt issue. Whereas, an issuer credit rating is an assessment of a company's "overall financial creditworthiness to pay its financial obligations."[32] Thus the issuer credit rating is preferable to an issue-specific credit rating when looking for companies similar in risk, since the former considers the overall financial creditworthiness of a company, not just that of a specific issue.

Historical Data

Q. Do you agree with Ms. Ahern's criticism of spot market data and defense of historical data?

A. No. This issue was previously discussed in great detail on pages 16 and 34-37 of my direct testimony. To summarize, the market value of common stock equals the cumulative value of the expected stream of future dividends after each is discounted by the investor required rate of return. Every day new information becomes available and investors rethink their projections of future cash flows and the risk level of a company. Thus, only a current stock price will reflect all information, both historical and current, that is available and relevant to the market.

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capacity (its creditworthiness) to pay its financial obligations." "A Standard & Poor's issue credit rating is a current opinion of the creditworthiness of an obligor with respect to a specific financial obligation, a specific class of financial obligations, or a specific financial program."

[32] Standard and Poor's Ratings Direct, "Standard and Poor's Ratings Definitions," December 10, 2002, pp. 1 and 4.

Ms. Ahern acknowledges that DCF theory indicates that spot market prices be used in a DCF analysis, but defends her use of average historical stock prices claiming it "normalizes the effects of any market aberrations or volatility and dramatic company-specific events upon stock prices."[33] As explained in my direct testimony, historical data has many shortcomings. Conversely, the only shortcoming of spot prices Ms. Ahern cites, volatility, can be mitigated through the use of samples, a technique that both Ms. Ahern and I already implement. Thus, not only is the use of historical data *inappropriate*, but the use of samples renders it *unnecessary* as well.

Q. Ms. Ahern states that "absent empirical evidence to the contrary, it is reasonable to assume that investors utilize historical data in arriving at their expectations and required returns,"[34] thus suggesting that historical data should be used. Do you agree with Ms. Ahern?

A. No. I do not dispute that investors base their expectations, in part, upon historical data. Rather, I dispute the propriety of using historical data as a direct estimate of those expectations. Ms. Ahern has failed to demonstrate that investors use the same data she used, in the same manner she used it, a demonstration that her call to "emulate investors" necessitates.

Q. Ms. Ahern claims that "the average, specifically the arithmetic mean, is the best estimate of the next expected value of randomly generated data"[35] and

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[33] CIWC Exhibit R-3.0, p. 16.
[34] CIWC Exhibit R-3.0, p. 13.
[35] CIWC Exhibit R-3.0, p. 14.

that "using the arithmetic mean of randomly generated data, such as long-term historical stock market returns or risk premia, is…entirely appropriate for cost of capital determination."[36] Do you agree with this claim?

A. No. Ms. Ahern's use of the phrase "mean" wrongly implies an equivalence of the sample mean she uses with the single, true population mean. Unfortunately, due to the large variance of market returns, one would need so long a time period to accurately measure the true mean that the mean most likely would have changed in the interim. Nobel prize winner Merton Miller stated:

> "as Fischer Black always reminded us, estimating variances is orders of magnitude easier than estimating the means or expected returns that are central to the models of Markowitz, Sharpe, or Modigliani-Miller. The precision of an estimate of the variance can be improved…by cutting time into smaller and smaller units – from weeks to days to hours to minutes. For means, however, the precision of estimate can be enhanced only by lengthening the sample period, giving rise to the well-known dilemma that by the time a high degree of precision in estimating the mean from past data has been achieved, the mean itself as almost surely shifted."[37]

Furthermore, Ms. Ahern concedes that "[Ms. Kight] is correct when she states that security return movements approximate a random walk."[38] According to an econometrics textbook, "a random walk is an example of a nonstationary time series."[39] A time series is nonstationary if its mean and variance change. Hence, securities prices and returns do not have the stable mean that the use of historical

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[36] CIWC Exhibit R-3.0, p. 15.
[37] Emphasis added, Miller, Merton H., "The History of Finance: An eyewitness account," *The Journal of Portfolio Management*, Summer 1999, p. 100.
[38] CIWC Exhibit R-3.0, p. 14.
[39] Gujarati, Damodar, N., Basic Econometrics, McGraw-Hill, 1995, p. 718.

data requires. Moreover, the best naïve estimate of the next expected value in a random walk is, in fact, the last observed value,[40] rather than the historical average.

Finally, even if one were to incorrectly accept the means of historical data as accurate estimators of investor expectations, their use remains problematic. Since the true historical mean is unobservable, and no universally-accepted sample historical measurement period exists, analysts cannot know if the data they select is truly representative of the data investors use.

Q. Ms. Ahern claims that she did not "select" the 1928-2001 time period to develop her utility equity risk premium. Rather, she claims that 1928-2001 is the default time period, because that "represents all the years for which data were available."[41] Do you agree?

A. No. That may or may not be true for the S&P Utility Index but that clearly is untrue for the market as a whole. Clifford Asness uses data from as far back as the 1871 and Jeremy Siegel presents data from as far back as 1802.[42] Moreover, in ICC Docket 02-0690, Illinois-American Water Company witness Paul Moul used the 1928-2001, 1952-2001, 1974-2001, and 1979-2001 time periods. The inability of users of historical data to agree on a definitive time period demonstrates that one does not exist. Thus, any time period chosen is arbitrary and subject to manipulation. Ms.

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[40] Foster, George, ~~Financial Statement Analysis~~, Prentice-Hall, Inc., 1978, p. 83.
[41] CIWC Exhibit R-3.0, p. 28.
[42] Asness, Clifford S., Stocks Versus Bonds: Explaining the Equity Risk Premium, *Financial Analysts Journal*, March/April 2000, p. 96. AIMR Equity Risk Premium Forum, November 8, 2001, p. 31.

Ahern has failed to demonstrate that the measurement period she chose is appropriate for measuring CIWC's cost of common equity today.

Ms. Ahern's DCF Analysis

Q. In response to your criticism of her DCF estimate stemming from missing Value Line earning per share ("EPS") estimates, Ms. Ahern argues that it is reasonable to assume that the values of the missing data were equal to the average of the available data.[43] Do you agree with her assumption?

A. No. Ms. Ahern states that no real conclusions can be drawn regarding the value of the missing estimates and, since the companies were selected on the basis of similar risk, it is reasonable to assume that the missing estimates equal the average for each proxy group. Ms. Ahern erroneously equates risk with growth. The two concepts are only tangentially related, in that growth is partly a function of expected return on new investment, which in turn, is partly a function of risk. However, growth is also a function of dividend policy, which has no direct relationship to risk. That is, the greater the proportion of cash earnings that a company pays out to investors as dividends, the lower the company's growth rate.[44] Ms. Ahern failed to demonstrate that the companies missing Value Line growth rates have the same dividend payout policies as those with Value Line growth rates. Nevertheless, I agree that no definitive conclusions can be drawn, which is

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[43] CIWC Exhibit R-3.0, p. 16.
[44] Reilly, Frank K. and Keith C. Brown, ~~Investment Analysis and Portfolio Management~~, Fifth Edition, 1997, p. 663.

precisely what reduces Ms. Ahern's supposed average Value Line EPS growth estimate to the level of conjecture and why it should be disregarded.

Q. Please respond to Ms. Ahern's claim that your statement that the "R" component of the BR+SV growth method is to be limited to incremental investment is incorrect.[45]

A. Ms. Ahern's use of the return on all equity to represent "R" implicitly makes an assumption that she never proved valid: that the return on new equity investment equals the return on existing equity. Morin, whom Ms. Ahern cites as an authority on this issue, reveals that the growth in earnings is based on future equity investment. In Morin's example, new investment is in the form of earnings reinvested in the company. The return on the original equity base is not growing at all, staying constant at $10 each year. In other words, if the company continued to earn the same return on its existing equity, but had no new investment (including retained earnings), it could not grow. It is only through the return on the new investment that growth can be sustained. It has been demonstrated mathematically that the "R" component of the BR+SV method, as stated in my direct testimony, should be based upon incremental investment only.[46]

Q. Ms. Ahern argues that the "circularity of using "BR+SV" is identical to the circularity inherent in using analysts' earnings growth forecasts. Please comment.

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[45] CIWC Exhibit R-3.0, p. 17.
[46] ICC Docket No. 95-0031, Direct Testimony of Dr. Charles M. Linke, Exhibit 8, pp. 9-23.

A. I used the analysts' earnings growth rates and stock prices to extrapolate the expected return of equity that those parameters embody. Whereas, Ms. Ahern starts with an expected return on equity. The "BR+SV" method requires Ms. Ahern to first estimate the expected return on equity ("R"), which is what she is trying to determine. Ms. Ahern then uses the resulting growth rate to estimate the expected return on common equity ("R").

Ms. Ahern's Capital Asset Pricing Model

Q. In defense of her estimate of the total market return in which she adds Value Line's forecast of median total market price appreciation with the median dividend yield of dividend-paying companies, Ms. Ahern again argues that rate of return analysts are to emulate investor behavior and that "information provided by Value Line is investor influencing and should not be rejected by any rate of return analyst."[47] Do you agree?

A. No. Ms. Ahern's argument implies that investors wrongly combine Value Line's estimate of median price appreciation and median dividend yield as she does. First, to my knowledge, Value Line never suggests that its median total market price appreciation and dividend yield should be combined to form a market return estimate.[48] Second, Ms. Ahern has failed to demonstrate that investors do, in fact, use Value Line data in the same flawed manner she employs.

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[47] CIWC Exhibit R-3.0, p. 20.
[48] In fact, Value Line does not add those two numbers together.

Q. Please respond to Ms. Ahern's argument that the median best estimates the central tendency of securities data in the market portfolio.

A. First, Ms. Ahern argues that "the median compensates for the effect that extremely high or low expected price appreciation and number of shares outstanding have on either the simple or weighted arithmetic mean."[49] While that may be true for small samples, a few outliers are highly unlikely to distort the arithmetic mean of a sample of approximately 1,700 stocks. Next, Ms. Ahern claims that "[i]t is entirely, conceivable that there are a sufficient number of stocks yielding the median dividend yield that by adding those non-dividend paying stocks to the data series, the median would still be the same."[50] Value Line currently reviews 1,701 companies, of those companies 737 paid dividends last quarter, which leaves 964 non-dividend paying stocks.[51] Since the number of non-dividend companies exceeds the number of dividend companies, the median dividend yield for all of Value Line's 1,701 companies equals zero. Therefore, Ms. Ahern's speculative "entirely conceivable" scenario is false.

Ms. Ahern's Empirical Capital Asset Pricing Model

Q. Please respond to Ms. Ahern's assertions that the article by Litzenberger, et al ("Litzenberger") cited in your direct testimony used both adjusted and unadjusted betas, contrary to your claim that it used only raw betas, and

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[49] CIWC Exhibit R-3.0, p. 20.
[50] CIWC Exhibit R-3.0, p. 21.
[51] www.valueline.com. Ms. Kight ran a Value Line Stock Screener on October 30, 2003 using the screening tool "dividend last quarter".

that that study does not support your claim that a beta adjustment is a solution to the discrepancy between the theoretically predicted and empirically observed relationship between risk and return.[52]

A. Ms. Ahern has misinterpreted that article. Litzenberger sets forth the empirical evidence that risk premiums are not proportional to "NYSE" betas[53] as the Capital Asset Pricing Model ("CAPM") predicts, but linear, with a positive intercept. This is Litzenberger's mathematically precise way of stating that the observed security market line, which maps the relationship between beta and return, is flatter than theory predicts. Litzenberger proceeds to discuss various ways of altering the CAPM itself or beta to bring the resulting predicted return more in line with actual results. That Litzenberger never combines adjusted betas with alternative versions of the CAPM is significant. Next, Litzenberger describes how the unadjusted (i.e., raw, or historical) betas may be used to predict risk premiums.[54] This procedure involves adjusting historical (i.e., raw) betas using the following equation:

$$b_{adjusted} = w \times b_{historical} + (1 - w) \times 1$$

The above adjustment, which I have applied to my raw (i.e., historical) beta estimates,[55] is known as the global adjustment approach. Litzenberger observes that if w were constant, then the cost of equity estimates using the resulting adjusted

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[52] CIWC Exhibit R-3.0, pp. 21-22.

[53] Litzenberger often refers to raw beta as a NYSE beta. Litzenberger, Ramaswamy and Sosin, "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital," *Journal of Finance*, May 1980, p. 369.

[54] Litzenberger, Ramaswamy and Sosin, "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital," *Journal of Finance*, May 1980, p. 376.

[55] For my adjustment, w = 0.66257, as adopted from Merrill Lynch.

betas would be identical to those using unadjusted betas in an empirically-derived CAPM.[56]

Q. Ms. Ahern argues that while you "correctly, and commendably, adjusted [your] calculated raw betas, [you] did so for the wrong reason"[57] since a beta adjustment does not correct for the observed flatness in the linear relationship between risk and return. Do you agree?

A. No. Ms. Ahern's claim is based on the misguided notion that an adjustment to beta and an adjustment to the CAPM model are discrete, unrelated adjustments. Her only support for this claim comes from Dr. Roger Morin, who incorrectly argued that the difference between an adjustment to beta and an adjustment to the CAPM model is that the Empirical Capital Pricing Model ("ECAPM") is a required return (Y-axis) adjustment and the beta adjustment is a risk (X-axis) adjustment.[58] However, as I will demonstrate below, the mathematical effect of either adjustment is identical. As such, any adjustment to beta along the X-axis results in a corresponding change to the return along the Y-axis. Thus, the beta adjustment does correct for the observed flatness in the linear relationship between risk and return.

The Security Market Line ("SML") shows the linear relationship between the required rate of return on a security (R_j, on the Y-axis) and beta (on the X-axis).

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[56] Litzenberger, Ramaswamy and Sosin, "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital," *Journal of Finance*, May 1980, pp. 376, 380.
[57] CIWC Exhibit R-3.0, p. 6-7.
[58] CIWC Exhibit R-3.0, Schedule 2, p. 4.

Theoretically, the intercept of the SML is the risk-free rate, R_f, and the slope is the market risk premium ($R_M - R_f$).

Ms. Ahern's ECAPM adjusts the CAPM as follows:

$$R_j = R_f + 0.25 \times (R_m - R_f) + 0.75 \times b_j \times (R_m - R_f)$$

This adjustment results in a higher intercept (i.e., $R_f + 0.25 \times (R_m - R_f)$ for the ECAPM in comparison to R_f in the CAPM) and a flatter slope (i.e., $0.75 \times (R_m - R_f)$ for the ECAPM in comparison to $R_m - R_f$ in the CAPM). The Value Line beta adjustment also flattens the slope of the SML, only more so:[59]

$$R_j = R_f + (0.35 + 0.67 \times b_j) \times (R_m - R_f) \quad (1)$$

Rearranging the terms in Equation (1) above produces:

$$R_j = R_f + 0.35 \times (R_m - R_f) + 0.67 \times b_j \times (R_m - R_f) \quad (2)$$

As Equation (2) shows, the CAPM, incorporating the Value Line beta adjustment, increases the intercept of the SML from R_f to $R_f + 0.35 \times (R_m - R_f)$ and reduces the slope from $R_m - R_f$ to $0.67 \times (R_m - R_f)$. Except for a difference in the magnitude of the adjustment to the slope and intercept, the above mathematically demonstrates that adjusting a beta is mathematically identical to the adjustment behind the

[59] The two beta adjustment I employ are very similar. Merrill Lynch beta adjustment : $b_{adjusted} = 0.33743 + 0.66257 \times b_j$; Value Line beta adjustment of $b_{adjusted} = 0.35 + 0.67 \times b_j$.

empirical CAPM. Therefore, a second adjustment to the CAPM above and beyond the adjustment to beta is neither necessary nor warranted. I do not dispute the necessity of either the ECAPM type or beta adjustment in isolation. I dispute the appropriateness of combining the two together.

Risk Premium Analyses

Q. Ms. Ahern denies that she applied a market risk premium-based beta to a non-market risk premium because "Value Line betas are …. calculated using price relatives."[60] Please comment.

A. Ms. Ahern's argument fails to respond to the assertion made. Ms. Ahern admits that beta measures market risk.[61] Ms. Ahern's risk premium analysis improperly measures a company-specific risk premium by multiplying beta by the difference between the market rate of return and the yield on AAA-rated corporate bonds.[62] However, beta is a measure of the quantity of market risk. The price of market risk equals the difference between the market rate of return and the risk-free rate. Yet, in the RPM, the price of "systematic risk" is the market rate of return less a corporate bond yield. That is, the RPM changes the price of systematic risk (i.e., risk premium), but holds the quantity (i.e., beta) constant. Use of beta in Ms. Ahern's RPM is akin to a customer going to a checkout line with 2 apples and the cashier charging the customer for 2 oranges. Unless the price of oranges and apples is the same, the customer will be mischarged. The market risk premium does not equal

[60] CIWC Exhibit R-3.0, p. 26.
[61] CIWC Exhibit R-3.0, p. 26.
[62] CIWC Exhibit No. 3.0, pp. 43-44.

the market rate of return less a corporate bond premium. Hence, Ms. Ahern's RPM "mischarges" the cost of equity.

Q. Ms. Ahern states that "the CAPM underestimates the common equity cost rate… because it does not capture unsystematic, non-diversifiable, company-specific risk," while "company specific, unsystematic, non-market, risk is fully captured in the RPM" without overestimating the cost of capital.[63] Is Ms. Ahern correct?

A. No. Ms. Ahern incorrectly claims that investors require compensation for all risk, systematic and unsystematic. That claim is contrary to portfolio theory, which posits that risk can be reduced without sacrificing returns through portfolio diversification. That is a fundamental principle of finance, one for which Harry Markowitz won a Nobel Prize and upon which a great deal of modern finance is built. According to portfolio theory, investors are only compensated for risk that cannot be eliminated through diversification (i.e., systematic risk). In the competitive financial market place, investors holding diversified portfolios will perceive less risk in a security than those investors who do not hold diversified portfolios. Consequently, diversified investors will place a greater value on securities than non-diversified investors; and the market clearing prices will reflect systematic risk only. Thus, unsystematic risk is not compensated. Bond yields, "company-specific" or otherwise, are not an exception to portfolio theory because investors can eliminate company-specific sources of risk inherent in a single company's bonds through diversification just as they can eliminate company-specific sources of risk inherent in a single company's

[63] CIWC Exhibit R-3.0, pp. 26-27.

stock. Therefore, corporate bond yields do not reflect unsystematic, non-market, company-specific risk and do not add unsystematic, non-market, company-specific risk to Ms. Ahern's risk premium model. The Commission should not reward an investor for the additional risk he incurs for his failure to diversify, when he could easily eliminate that additional risk.

In addition, Ms. Ahern's claims that her risk premium model estimates a cost of equity that reflects total risk rather than just non-diversifiable risk as captured by the CAPM. Thus, the estimated cost of equity using Ms. Ahern's risk premium model should be greater than the same estimate using the CAPM. However, Ms. Ahern's risk premium model estimates a lower cost of equity than the CAPM for companies with betas greater than 1. An example is provided in the following table.

Inputs			
R_f = 5.4%	R_m = 15%	b_j = 1.5	$R_{A\text{-}bond}$ = 7.2%
CAPM		**Ms. Ahern's Risk Premium Model**	
$R_j = R_f + b_j \times (R_m - R_f)$		$R_{ßRPMj} = R_{A\text{-}bond} + b_j \times (R_m - R_{A\text{-}bond})$	
R_j = 5.4% + 1.5 × (15% - 5.4%)		$R_{ßRPMj}$ = 7.2% + 1.5 × (15% - 7.2%)	
R_j = 19.8%		$R_{ßRPMj}$ = 18.9%	

Q. Ms. Ahern denies that her beta adjusted Risk Premium model is a CAPM derivation. Is she correct?

A. No. Ms. Ahern claims that her risk premium model ("RPM") is distinct from the CAPM and both are recognized by the "financial literature." The "financial literature"

does recognize risk premium analysis, but not as Ms. Ahern has implemented it. As shown in my direct testimony,[64] Ms. Ahern's RPM analysis is an average of two distinct models. The first model can be reduced to the following equation:

$$R_j = R_{A2} + b_j \times (R_m - R_{Aa/Aaa})$$

In comparison, the CAPM is expressed as:

$$R_j = R_f + b_j \times (R_M - R_f)$$

These two models are exactly the same, except that Ms. Ahern's model substitutes for the risk-free rate the yield on A2 rated debt in one place and the yield on Aaa-rated corporate debt in another. Thus, the first of the two models averaged in Ms. Ahern's RPM analysis, is, in fact, a CAPM derivation, in which Ms. Ahern improperly applies a market risk beta to a non-market risk premium and inappropriately incorporates two different long-term corporate bond yields as substitutes for the risk-free rate.

Q. Please respond to Ms. Ahern's claim that your "algebraic manipulations" needlessly complicate her RPM and demonstrate your misunderstanding of the model.[65]

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[64] ICC Staff Exhibit 3.0, pp. 46-51.
[65] CIWC Exhibit R-3.0. p. 27.

A. Ms. Ahern's assertion is akin to blaming math for the result "2+2=4" when one desires the answer "5". Unfortunately for Ms. Ahern, the laws of mathematics cannot be manipulated. My "algebraic manipulations" simply describe Ms. Ahern's methodology, step by step, exactly as she implemented it. My "algebraic manipulation" of her model breaks her model into its parts and demonstrates that when $R_{UtilityA2} \neq R_{Corporate\ Aaa}$, as is the case in Ms. Ahern's model ($7.2\% \neq 6.25\%$), then the model will not produce identical returns for two securities with identical risk, which violates a fundamental financial principle. Those same mathematics also demonstrate that whenever R_{A2} is greater than $R_{Corporate\ Aaa}$, as is the case in Ms. Ahern's model ($7.2\% > 6.25\%$), then the model will systematically overestimate the cost of equity for companies with a beta less than one, which applies to every company in Ms. Ahern's samples.

Ms. Ahern's Comparable Earnings Model Analysis

Q. Please respond to Ms. Ahern's repeated assertion that her comparable earning model ("CEM") analysis is market-based because "the selection of non-price regulated firms of comparable risk is based upon statistics derived from the market prices paid by investors"[66]

A. Whether or not the sample selection method is based upon market prices is irrelevant, since Ms. Ahern's CEM results are based upon accounting returns, which are unresponsive to market forces, rather than market returns. As such, the CEM fails to measure investor return requirements, which are reflected in securities

[66] CIWC Exhibit R-3.0, p. 29.

prices. In contrast, the EMH, which Ms. Ahern considers "the foundation of modern investment theory,"[67] relates to market returns, not accounting returns.

Q. In response to your argument that the return estimated by the comparable earnings analysis can be significantly distorted by accounting practices, Ms. Ahern claims that "different accounting practices also affect the growth rate component, projected or historical, of the DCF model" and that "because the criteria used to select the non-utility companies in my application of the CEM are based upon total risk, i.e., the sum of non-diversifiable, market, risk and diversifiable, non-market or company-specific, risk, all impacts of accounting differences have been obviated."[68] Please comment.

A. Neither of Ms. Ahern's comments refute my argument. Ms. Ahern's first rationalization does not dispute my claim, but rather, implies that the same problem occurs in the DCF model, which we both utilize. This, in turn, implies that accounting differences should be overlooked. However, the companies in both of my samples are all regulated utilities and, therefore, are required to employ similar accounting practices. Hence, differing accounting practices do not affect my DCF analysis.

The second rationalization asserts that because her CEM proxy groups were chosen based upon statistics derived from market prices, her CEM analysis is market-based. As previously discussed, that is simply not true. The cost of equity

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[67] CIWC Exhibit R-3.0, p. 2.
[68] CIWC Exhibit R-3.0, p. 29.

is an investor-required rate of return, which is a function of risk and manifested in market prices. As Ms. Ahern acknowledges, the results of her CEM analysis are based upon accounting returns,[69] which are not directly related to required market returns. Hence, her sample selection methodology does not obviate the impact of accounting differences.

Q. In response to your criticism that Ms. Ahern's CEM analysis uses samples with higher sample betas than her DCF, CAPM, and RPM analyses, Ms. Ahern claims that, "using Ms. Kight's logic, [American States Water Co. and Philadelphia Suburban Corp.] should not be part of the same sample group because they are not of similar risk,"[70] based on the difference in their betas. What is your response?

A. Ms. Ahern was not using my logic. Ms. Ahern's CEM results are based upon the average accounting returns of two samples, which are meant to be proxies for the two samples she uses as surrogates for CIWC. (In other words, Ms. Ahern's CEM samples are proxies of proxies.) However, the average betas of Ms. Ahern's two CEM proxy groups exceed those of the sample groups they are supposed to represent by 0.09 and 0.04, not 9 and 4 basis points as Ms. Ahern claims.[71] A basis point is 1/100 of a percentage point. Beta is not measured in percent.

In addition, even if one were to wrongly assume that accounting book returns were reasonable proxies for investor-required returns, since the risk levels of the CEM

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[69] CIWC Exhibit R-3.0, p. 30.
[70] CIWC Exhibit R-3.0, p. 31.
[71] CIWC Exhibit R-3.0, p. 31.

proxy groups are higher than those of the sample groups used as surrogates for CIWC, the book returns of the CEM proxy groups would overstate the expected book returns of the sample groups used as surrogates for CIWC.

Somehow, Ms. Ahern extrapolated from my observation about the difference in risk between Ms. Ahern's CEM samples and the CIWC surrogates that no two companies whose betas differ should be allowed in the same sample group. My argument, however, has nothing to do with the difference of individual company betas within the groups. I estimated CIWC's cost of common equity with samples, not an individual company. Since no two companies are identical, one should expect that samples would contain companies with different levels of risk. Thus, I did not criticize Ms. Ahern's CEM samples for including companies with such disparate betas as 0.45 for International Aluminum and 0.85 for IHOP Corp. Rather, the issue is whether a sample, as a whole, has the same level of risk as the company for which that sample is designed to be a proxy. Therefore, I criticized the difference between the average betas of her two CEM samples in comparison to the average betas of her water and utility samples. In addition, individual company betas are very unreliable. Fortunately, beta estimates can be greatly improved through the use of portfolios (i.e., samples). Therefore, differences in individual company betas are of far less significance than differences in sample betas.

Q. In response to your criticism of the accuracy of the unadjusted betas she used in her CEM analysis, Ms. Ahern claims that, trying to calculate

unadjusted betas from adjusted betas "is an exercise in futility and worthless."[72] Please comment.

A. Ms. Ahern's reliance on a proprietary database has created a problem for her. She desires the Commission to accept an analysis that relies on data that she did not permit Staff to verify. When I attempted to verify the validity of that data through published Value Line sources, I found discrepancies between those two data sources. Once again, her only defense for those discrepancies is to blame it on math. Unfortunately, Value Line only publishes the adjusted betas, which are rounded to the nearest 0.05. Therefore, determining the unadjusted beta to the degree of precision with which Ms. Ahern presents them, (i.e., 0.01) is not possible . However, even taking into consideration rounding, a range can be established for the unadjusted betas for a given adjusted beta. Value Line's formula for adjusting betas is:

$$b_{adjusted} = 0.35 + 0.67 \times b_j.$$

The Value Line adjustment can be applied to the adjusted betas to determine the unadjusted beta by subtracting 0.35 from the adjusted beta then dividing by 0.67. Applying the above formula to an adjusted beta of .65 (which could have been between 0.625-0.674 before rounding to the nearest 0.05) result in an unadjusted beta of 0.410 to 0.484. Ms. Ahern presents numerous companies, including Libbey, Inc., with published Value Line adjusted betas of 0.65. She also presents their

[72] CIWC Exhibit R-3.0, p. 32.

corresponding unadjusted betas, which range from 0.39 for Libbey Inc.[73] to 0.47 for Sensient Technology.[74] Ms. Ahern represents that the unadjusted beta for Smucker (J.M.) is 0.39.[75] However, Smucker's adjusted beta equals 0.60. It is evident that the information provided for either Libbey, Inc. or Smucker's is incorrect, since they cannot have the same unadjusted betas (.39) but different adjusted betas (.65 and .60, respectively). This is mathematical proof that the proprietary information Ms. Ahern relied upon contains inaccuracies.

Size Premium

Q. What is your response to Ms. Ahern's claim that "a 'theoretical' basis [for a size-based risk premium] is not necessary in the face of common sense and empirical evidence?[76]

A. Theory explains why a pattern exists. If a systematic reason for an observed phenomenon exists, that phenomenon can be expected to continue into the future. In contrast, without theoretical underpinnings, empirical evidence cannot be presumed, much less proved, to continue into the future. A major shortcoming associated with the size premium is that empirical evidence has been period-specific. Further, the "crossover effect" Fernholz found, which I explained on pages 59-60 of my direct testimony, indicates that the size effect is due to shortcomings in the design of the underlying empirical tests.

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[73] CIWC Exhibit No. 3, Schedule 15, p. 1.
[74] CIWC Exhibit No. 3, Schedule 15, p. 4.
[75] CIWC Exhibit No. 3, Schedule 15, pp. 3-4.
[76] CIWC Exhibit R-3.0, pp. 34-35.

Q. What is your response to Ms. Ahern's argument that just because a study does not specifically refer to utilities does not mean that the study does not apply to utilities, because "financial theory is applicable across the broad spectrum of firms and not limited to any particular industry or industries."[77]

A. Ms. Ahern is trying to have it both ways. On the one hand, she argues that empiricism and "common sense" trumps theory. On the other hand, she argues that the size-effect must apply to utilities since theory is applicable across the broad spectrum of firms and industries.

Of course, theory is not on Ms. Ahern's side; therefore, she cannot ingenuously rely upon theory to save her untenable argument. Ms. Ahern has not demonstrated that a size premium has any theoretical basis. That is precisely the problem, and precisely why Ms. Ahern argued that empirical data is more important than theory. Regardless, the fact that studies on size-based premiums do not specifically address utilities does matter. The average return on a sample of industries does not necessarily apply to each industry in the sample. For example, if data were found that warranted size-based premiums of 2% for the steel industry, 1% for the airline industry, and 0% for the utility industry, the average size-based premium would be 1%. Clearly, it cannot be said that the 1% average size-based premium applies to the utility industry.

The only evidence Ms. Ahern has presented that loosely relates to the utility industry is an excerpt from Ibbotson Associates ("Ibbotson") Valuation Edition - 2003

[77] Emphasis added, CIWC Exhibit R-3.0, p. 35.

Yearbook. Ms. Ahern claims that table 7-14, on page 143 of that publication, verifies that a size premium does apply to utilities, and thus to CIWC. Ibbotson does not make that claim. To the contrary, on page 141 of that publication, Ibbotson states that "[t]he excess returns presented in this table should not be construed as size premia." Further, page 143 of the Ibbotson publication states that for that study, "[i]ndustries are defined at the two-digit SIC (Standard Industrial Classification) code level." Ms. Ahern states that "the two digit SIC code for utilities is 49."[78] However, other entities such as steam and air-conditioning supply companies are also included within the SIC code 49. Thus, while utilities are included in the group, what Ms. Ahern would refer to as the "utility" industry, was broadly defined to include such entities as steam and air-conditioning supply companies and irrigation system companies in addition to regulated utilities. In contrast, when referring to utilities in my direct testimony, I meant specifically regulated utilities. As indicated on page 59 of my direct testimony, regulated utilities differ from other non-regulated industrial companies (even those assigned a SIC code of 49) in that the cost of obtaining information regarding smaller utilities in general, and CIWC in particular, is unlikely to be as high as that of unregulated companies that are similar in size; hence, the application of a size-based premium to a utility is highly questionable. The Ibbotson study does not prove otherwise. In contrast, the Wong article cited on page 59 of my direct testimony, applies directly to regulated utilities. Also, unlike the Wong article, the statistical significance of the results of the Ibbotson study, which Ibbotson does not present, are questionable, particularly in light of the large standard deviations of returns in SIC code 49.

[78] CIWC Exhibit R-3.0, p. 35.

Further, Ibbotson provides neither the betas for the small and large groups nor any indication of the size of the companies in each group. Without this information, both the degree to which beta can explain the difference in the realized returns between the small and large groups and even which group Philadelphia Suburban would reside is unknown.

Finally, an error in design likely influences the results of the Ibbotson two-digit SIC code study, as explained above. In fact, the "crossover effect" would likely be even more pronounced in the Ibbotson study because companies were only broken down into two groups, small and large.

Q. What is your response to Ms. Ahern's claim that you were incorrect when you stated that, if allowed, any size-based risk premium should be based upon the size of CIWC's parent, Philadelphia Suburban Corporation ("PSC")?[79]

A. Since the equity of CIWC is obtained indirectly from the investor through PSC, a much larger organization, neither CIWC nor PSC incur the additional costs allegedly associated with smaller companies. PSC can pass through equity capital to CIWC without incurring the costs that market-traded companies comparable in size to CIWC are alleged to incur. The fact that potential lenders are interested in the ability of CIWC alone to service any additional debt is irrelevant,[80] since CIWC is the

[79] CIWC Exhibit R-3.0, p. 33.
[80] CIWC Exhibit R-3.0, p. 34.

sole obligor of that debt. In contrast, CIWC has only one equity investor, PSC, which incurs costs to raise equity commensurate with PSC's liquidity, not CIWC's liquidity.

Q. Ms. Ahern argues that reductions in costs resulting from efficiencies will be reflected in the operating expenses component of the revenue requirement; hence, ratepayers will not be denied the benefits associated with the combined entity's stronger financial profile.[81] Do you agree?

A. No. Although operating efficiencies are reflected in the operating expenses component of the revenue requirement, capital market efficiencies are not. Thus, if efficiencies are gained, but are not reflected in the cost of capital, the ratepayers will be denied the benefits associated with the combined entity's stronger financial profile. As indicated on page 57 of my direct testimony, being a part of a much larger organization could enhance the ability of CIWC to access the common equity market on reasonable terms. In fact, Consumers Water Company and PSC agreed to precisely that when they stated, in their joint application for approval to merge, that "the combined entity will have a stronger financial profile," which "should enhance the ability of PSC and Consumers Illinois to access the capital markets on reasonable terms."[82]

Q. Ms. Ahern asserts that Ibbotson used adjusted betas; therefore, she concludes that her size-based risk premium in not inconsistent with Ibbotson's historical size-based premia. Please comment.

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[81] CIWC Exhibit R-3.0, p. 34.
[82] ICC Docket 98-0602, Verified Application of Joint Applicants, pp. 6-7.

A. I do not agree that Ibbotson performed his study of size-based risk premiums with adjusted betas. The description of the study does not mention any adjustment to betas. Such an omission is not trivial since academic studies must be described in detail sufficient for others to replicate them. Rather than cite the study, Ms. Ahern cites another passage from Ibbotson that describes how Ibbotson estimates betas for cost of capital analysis.[83] Nevertheless, even if Ibbotson's size-based risk premium study incorporated adjusted betas as described in another part of the Ibbotson book, Ms. Ahern's application of a historical size-based premium would still be inconsistent with the manner in which Ibbotson measured the historical size-based risk premiums. Ms. Ahern added a size-based premium to her CAPM-based risk premium analysis, which is based on adjusted Value Line betas. Value Line uses a different methodology to estimate and adjust its betas than the one Ibbotson describes. The Value Line methodology was discussed on pages 26-27 of my direct testimony. Ibbotson uses the S& P 500 for its market data instead of the NYSE and it looks at data from 1926-2002 instead of the last five years.[84] In addition, the Ibbotson beta adjustment is company-specific, which is based on the statistical quality of the regression for each security. In contrast, Value Line uses the same adjustment for all securities. Thus, Ms. Ahern's application of a historical size-based premium is still inconsistent with manner in which Ibbotson estimated it.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

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[83] CIWC Exhibit R-3.0, p.36.
[84] Ibbotson Associates Valuation Edition- 2003 Yearbook, pp.104-105, and 124.